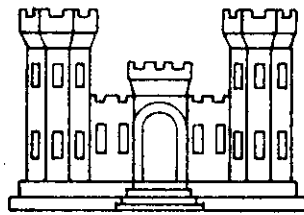


CONFIDENTIAL

PRELIMINARY EXAMINATION
(REVIEW OF REPORTS)
OF
BOSTON HARBOR, MASS.
(SHIRLEY GUT)
MASSACHUSETTS



AUTHORITY—THIS REPORT IS
SUBMITTED IN COMPLIANCE
WITH RESOLUTION, ADOPTED
MAY 2, 1939, BY THE COMMITTEE
ON COMMERCE OF THE UNITED
STATES SENATE.

U. S. ENGINEER OFFICE,
BOSTON, MASS.
AUGUST 17, 1940.

COPY NO. 17

PUBLIC NOTICE RELATIVE TO PROPOSED IMPROVEMENT
OF BOSTON HARBOR, MASSACHUSETTS.

* * * * *

WAR DEPARTMENT
THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS
No. 2 New York Avenue, N.W.
Washington, D. C.

October 6, 1942

6542/10

TO WHOM IT MAY CONCERN:

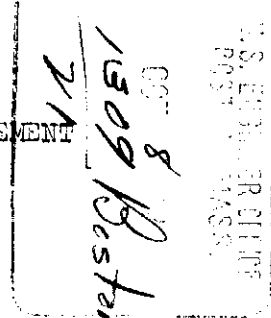
By resolution adopted December 10, 1941, the Committee on Rivers and Harbors of the House of Representatives, United States, requested the Board of Engineers for Rivers and Harbors to review the reports on Boston Harbor, Massachusetts, printed in House Document Numbered 244, Seventy-second Congress, first session, with a view to determining if the existing project should be modified at the present time.

A report has been received from the Division Engineer recommending modification of the existing project for Boston Harbor, Massachusetts, to provide for extending and deepening certain channels in Boston Harbor.

After full consideration of the reports of the District and Division Engineers the Board of Engineers for Rivers and Harbors is not convinced of the advisability of the United States undertaking the improvement recommended by the Division Engineer.

All parties interested in the improvement are invited to submit, within a period of thirty days from the date of this notice, statements and arguments bearing upon the necessity for the improvement in the interests of commerce and navigation. Such statements should be addressed to "The Board of Engineers for Rivers and Harbors, No. 2 New York Avenue, N. W., Washington, D. C." Should a hearing be desired, this can be arranged by correspondence with the Board.

THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS



**PUBLIC NOTICE RELATIVE TO PROPOSED IMPROVEMENT OF
SHIRLEY GUT, BOSTON HARBOR, MASSACHUSETTS**

**WAR DEPARTMENT
OFFICE OF DIVISION ENGINEER
NORTH ATLANTIC DIVISION
Room 1213, Federal Office Building, 90 Church St.
NEW YORK, N. Y.**

Boston Hbr. 1/181.4b

September 9, 1940

TO WHOM IT MAY CONCERN:

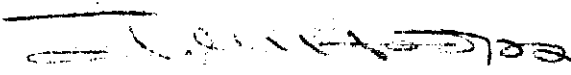
1. It has come to the notice of the undersigned that you have expressed an interest in the pending proposition for the improvement of Shirley Gut, Boston Harbor, Massachusetts. You are informed that the review of report thereon, authorized by a resolution adopted May 2, 1939, by the Committee on Commerce, United States Senate, has been submitted and is unfavorable to any improvement of Shirley Gut at this time. This adverse conclusion is based on the finding that the benefits to be expected from the desired reopening of Shirley Gut would not justify the large expenditure involved.

2. You are further notified that all interested parties have the privilege of an appeal from this conclusion to the Board of Engineers for Rivers and Harbors, a permanent body sitting at Washington, D. C., to which all examination and survey reports of this character are referred. Parties desiring to do so may be heard on appeal by the Board, either orally or in writing. Written communications should be addressed to the Board of Engineers for Rivers and Harbors, Munitions Building, Washington, D. C., and should be mailed in time to be in the possession of the said Board within four weeks from the date of this communication. If, however, you have important data to communicate to the Board, which cannot be collected and put in shape for proper presentation within four weeks, the Board should be informed of this fact without delay and request made for an extension of the limiting date for submitting information. If oral hearings are desired, dates for the same may be arranged for by correspondence with the Board.

3. Any further information needed may be obtained by application to the Division Engineer, or to the District Engineer, United States Engineer Office, 3d Floor, Park Square Building, 31 St. James Avenue, Boston, Massachusetts, but attention is invited to the following regulation as to the manner in which such information may be furnished:

"Where interested parties desire data necessary for the preparation of their appeal to the Board of Engineers for Rivers and Harbors, they will be afforded full opportunity to examine the copies of the reports of the District and Division Engineers in their respective offices, subject to the understanding that no part of the contents of these reports will be published in the newspapers or otherwise until the reports have been submitted to Congress. Copies of the reports will not be furnished or loaned for use outside of the office, but interested parties will be permitted to make such notes of the contents as they desire.

4. You are requested to communicate the foregoing to any persons known to you to be interested in the improvement and who, not being known to this office, do not receive a copy of this communication.


J. H. HODGES,
Colonel, Corps of Engineers,
Division Engineer

PRELIMINARY EXAMINATION (REVIEW OF REPORTS) OF BOSTON HARBOR
(SHIRLEY CUT), MASSACHUSETTS

Syllabus

The district engineer is of the opinion that the general benefits to navigation which would result from the desired improvement of Shirley Cut, Boston Harbor, Massachusetts, would not justify the large expenditure involved. A survey of the locality is not recommended.

War Department
United States Engineer Office
Boston, Massachusetts
August 17, 1940

Subject: Preliminary examination (review of reports) of Boston Harbor
(Shirley Cut), Massachusetts.

To: The Chief of Engineers, U. S. Army, through the Division Engineer,
North Atlantic Division, New York, N. Y.

1. Authority.-- This report is submitted in compliance with the following resolution, adopted May 2, 1939, by the Committee on Commerce of the United States Senate:

RESOLVED BY THE COMMITTEE ON COMMERCE OF THE UNITED STATES SENATE, That the Board of Engineers for Rivers and Harbors, created under Section 3 of the River and Harbor Act, approved June 13, 1902, be, and is hereby, requested to review the reports on Boston Harbor, Massachusetts, submitted in House Document Numbered 244, Seventy-second Congress, First Session, and subsequent reports, with a view to determining if any improvement at Shirley Cut is advisable at the present time.

2. Reports under review.-- The reports contained in House Document No. 244, 72d Congress, 1st session, were not concerned with any improvement in Shirley Cut. However, two subsequent reports have been submitted dealing with improvements in this locality. In his report on preliminary examination

dated December 20, 1934, the Chief of Engineers recommended unfavorably on the improvement of Shirley Gut to provide a channel 100 feet wide, 14 feet deep at mean low water, and about 800 yards long, on the ground that the probable benefits would not justify the large expenditures involved. For similar reasons, the Chief of Engineers reported unfavorably on a 15-foot channel through Shirley Gut in his report on preliminary examination dated November 6, 1936. No action on the improvement of Shirley Gut has been taken by Congress.

3. Description.— Shirley Gut is the narrow, natural waterway which formerly connected the protected waters in the northern portion of Boston Harbor with the open waters of Broad Sound, and separated Deer Island from the tip of the mainland at Point Shirley in Winthrop. Gradual shoaling, caused by the action of heavy seas in Broad Sound, has built up a deposit across the Gut which now constitutes a barrier between those two bodies of water and, even at mean high tide, forms a land connection between Deer Island and the mainland. While this shoaling process has apparently proceeded at an accelerated rate in recent years, its progress on the whole has been decidedly gradual. An early map of Boston Harbor, made in 1788, indicates that at that time the waterway was about one-quarter mile wide. It was then known as "Pulling Point Gut", a name said to be derived from the fact that vessels proceeding through the Gut had to be landed and pulled along the shore against the swift tidal current which swept through the Gut at that time. On a later map, published in 1830, the passage was labeled "Shirley Gut" and showed a width of 600 or 700 feet. In 1860, the minimum channel width was about 240 feet between banks and the depth at mean low water was about 20 feet. In 1908, the controlling depth had decreased to about 10 feet, and a survey made by this office in 1931 showed a controlling depth of but 0.6 foot at mean low water. Subsequent surveys by the Commonwealth of Massachusetts in 1934 and 1937 indicated continued shoaling. In the former year, shoaling had progressed to a point where the Gut was entirely bare at low water and even at high water was covered by an irregular belt less than 100 feet wide at its narrowest point,

with depths of 1 to 5 feet at mean high tide. In 1937, the summit of the bar had been built up to 1 to 3 feet above mean high water, forming an unbroken land connection between Deer Island and Point Shirley, not less than 150 feet in width.

4. For a number of years prior to about 1937, the bar across Shirley Gut was used as a roadway at stages lower than half-tide. Since 1937, however, this roadway has been used at all stages of the tide. The Gut is crossed by a sewer siphon approximately 8 feet in outside diameter, forming a part of the North Metropolitan Sewerage District system; by two water lines, 12 inches and 8 inches in diameter; and by a submarine cable carrying wires of the New England Telephone and Telegraph Company. At its lowest point, the top of the sewer siphon is 18.5 feet below the plane of mean low water, while the 12-inch and 8-inch water pipes and the telephone cable are located 25 feet, 15 feet and 12 feet, respectively, below that plane.

5. No bridge crosses Shirley Gut, nor are there any terminal or transfer facilities in the immediate vicinity. From 1899 to 1911, the Commonwealth of Massachusetts expended approximately \$1,900 in widening and deepening Shirley Gut to 6 feet at mean low water. At various times sand and gravel for commercial use have been dredged in the locality by private companies under Federal and State permits. No Federal project has ever been recommended or adopted for the improvement of Shirley Gut. The only prior reports on the waterway are those discussed in paragraph 2. The improvement under consideration would involve no questions of water power, flood control or other special subjects not discussed in this report.

6. The mean and spring ranges of tide at Shirley Gut are 9.5 and 11.0 feet, respectively. The locality is shown on U. S. Coast and Geodetic Survey Charts Nos. 246 and 1207, and on the map accompanying this report.

7. Tributary area.— North of Shirley Gut lies the town of Winthrop, Massachusetts, which in 1930 had a population of 16,852. Fort Banks, a United States Army reservation, is located in Winthrop, as are several small

manufacturing establishments, but the town is primarily a residential community forming part of Metropolitan Boston. Deer Island which lies southeast of Shirley Cut in the outer portion of Boston Harbor, is about a mile in length and a quarter-mile wide. A portion of the island is owned by the City of Boston which maintains thereon a penal institution known as the Suffolk County House of Correction. A number of fire control stations forming part of the system for military defense of Boston Harbor are also located on Deer Island. The sewer which crosses Shirley Cut extends the full length of the island and terminates in an outfall where it discharges into the harbor off the southeast tip of the island.

8. Improvement desired. - In order to afford local interests an opportunity to express their views with respect to the improvement of Shirley Cut, a public hearing was held April 15, 1940, at Winthrop, Massachusetts. Oral and written statements were presented at the hearing by yachting and fishing interests; representatives of the Commonwealth of Massachusetts, the City of Boston and the Town of Winthrop; transportation interests; the Boston Port Authority; the Maritime Association of the Boston Chamber of Commerce; the Coast Artillery, U. S. Army; the New England Telephone and Telegraph Company; and a number of interested individuals.

9. Local interests requested that Shirley Cut be restored to its former status as a navigable waterway by provision of a dredged channel 100 feet wide and 12 feet deep at mean low water. Some of the yachting interests represented at the hearing indicated that a smaller channel, 8 feet deep and 55 feet wide, would be acceptable to them if the 12' x 100' improvement should fail to be adopted. Some of the proponents advocated provision of suitable jetties at the seaward end of the desired channel to prevent shoaling and to provide shelter for small vessels entering the Cut from rough seas in Broad Sound. Others suggested that jetties be provided only if their necessity should be indicated by careful observations subsequent to dredging of the channel. The town engineer of Winthrop expressed the opinion that maintenance of a dredged

channel could be effected more cheaply by periodic dredging than by the construction of jetties.

10. In support of the desired improvement, local interests stated that a suitable channel in Shirley Gut could and would be used to advantage by pleasure craft, small fishing boats, fireboats, and small commercial vessels, such as tugs and oil barges. For vessels proceeding from Boston to Lynn, Salem, Marblehead, and other points on the North Shore, it was claimed, Shirley Gut would provide a shortened route which would save time and reduce operating costs. Use of the Gut, it was stated, would enable small boats to avoid the dangers inherent to small craft in navigating the main ship channels south of Deer Island where they must contend with the heavy traffic and the strong wash caused by large ships entering and leaving Boston Harbor. It was claimed that, since it would appreciably relieve congestion in those ship channels, especially on week-ends during the yachting season, diversion of small-boat traffic through Shirley Gut would constitute an important benefit to commercial shipping.

11. Numerous regattas sponsored by local yacht clubs were formerly raced over a course in Broad Sound between Point Shirley and Nahant, but with Shirley Gut closed this is no longer practicable. Local yacht races are now held over a course which extends from Winthrop toward Dorchester Bay and takes contestants directly across the main ship channel of Boston Harbor. With Shirley Gut open, it is claimed that these regattas would again be run on the Nahant course, resulting in safer conditions for competing boats and elimination of interference with commercial navigation. It was also suggested that an adequate channel in the Gut might be used to advantage by small naval vessels of the sub-chaser type.

12. Proponents of the improvement expressed the belief that opening of Shirley Gut would result in other important benefits in addition to those concerned with navigation. These include the reduction or elimination of erosion on Winthrop beaches; the abatement of pollution in the waters of these beaches,

now caused by sewage discharged into the harbor off Deer Island; and the formation of a barrier of water to serve as protection to the people of Winthrop against inmates attempting escape from the prison on Deer Island.

13. Representatives of the City of Boston characterized the opening of Shirley Gut as an unwise and unnecessary expenditure of funds which would result in no commercial benefit. Opposition by the city was based principally on the fact that dredging of the desired channel would destroy the roadway upon which the Deer Island prison is entirely dependant for its police and fire protection, access to medical and hospital facilities on the mainland, and delivery of essential supplies, including fuel oil. If deprived of a roadway across the Gut, access to the mainland by water would be necessary and this would involve major repairs to the prison wharf, dredging of an approach channel and berthing space, construction of storage tanks for oil, and other items which would necessitate an expenditure estimated by city officials at \$150,000 to \$175,000. Other expenditures which would be necessitated by the desired improvement, according to city officials, would be for construction of retaining walls along the Deer Island shore of the channel, revision of water lines, and probable reconstruction of the sewer siphon and appurtenant structures in the vicinity of the Gut. In so far as the Deer Island prison is concerned, provision of a suitable bridge over the desired channel at no expense to the city would remove the principal objections upon which the city of Boston would otherwise base its opposition to the desired improvement.

14. A representative of the Coast Artillery, U. S. Army, stated that the Army considers a roadway across Shirley Gut essential to the movement of mobile artillery to Deer Island for the protection of the entrance to Boston Harbor.

15. No definite offer was made by local interests to share the cost of the desired improvement. A representative of the New England Telephone and Telegraph Company stated that the company would take care of its submarine cable in connection with any dredging which might be done. The Chairman of the Board of Selectmen of Winthrop expressed willingness to put the matter of local

cooperation before the voters of the town, and several statements of Winthrop citizens expressed confidence that the town would make some contribution. Yachtsmen made similar favorable but indefinite statements with respect to a possible contribution by yachting interests. The Waterways Division of the Massachusetts Department of Public Works, which went on record at the hearing as neither favoring nor opposing the desired improvement, failed to make any offer of local cooperation on behalf of the Commonwealth.

16. Commerce and vessel traffic. - In former years, small commercial craft and pleasure vessels made considerable use of the passage through Shirley Gut. Now entirely blocked by a deposit of sand and gravel which rises above mean high water, there has been no navigation of any kind through the Gut in recent years. The prospective traffic upon which local interests base their request for the opening of this waterway consists of recreational craft, small fishing vessels, and tugs and oil barges of moderate size. Pleasure boats likely to utilize a channel through the Gut would range from 18 to 50 feet in length and from 2 to 8 feet in draft. Statements made at the hearing listed 19 yacht clubs in Boston Harbor with an enrollment of nearly 1,000 boats. It was estimated that on week-ends about 300 of these would use a channel in Shirley Gut on their way to points on the North Shore of Massachusetts Bay and that as many as 200 pleasure craft from North Shore points might enter Boston Harbor by way of the Gut during regattas sponsored by local clubs.

17. Small fishing boats which work out of Boston and might be expected to make extensive use of the Gut include vessels engaged in shore fishing, herring boats, and crab and lobster boats, aggregating about 100 in number. These vessels were described as ranging from 30 to 45 feet in length and up to about 5 feet in draft. Other commercial vessels which local interests claim would use the waterway include tugs, fireboats and oil barges requiring depths generally not less than 12 feet.

18. Difficulties attending navigation. - Proponents of the desired improvement pointed out that, with Shirley Gut closed to navigation, recreational

craft and small fishing and other commercial vessels are forced to enter and leave Boston Harbor by way of the main ship channels south of Deer Island. They claim that this route not only entails added running time and increased operating costs to vessels traveling between Boston and the North Shore, but also exposes small craft to the dangerous wash created by large vessels under way and adds to the congestion in the main ship channels, to the detriment of commercial shipping generally.

19. Shore-line changes. - Erosion of beaches in the vicinity of Shirley Gut was discussed by several individuals present at the hearing. Erosion has apparently been most pronounced along the harbor side of Point Shirley, north and west of the Gut. According to statements made by property owners, the shore in this vicinity has been severely attacked, particularly in recent years, necessitating substantial expenditures by owners of shore property for the repair of seawalls. Local interests have advanced the opinion that the swift current which formerly swept through Shirley Gut tended to break up rough seas approaching this beach. With the Gut closed, they claim this protection is no longer available, and erosion of the beach has consequently progressed at an accelerated rate. With apparent reference to portions of the Winthrop beach which face Broad Sound, another statement made at the hearing indicated that the beach has gone down about one foot in recent years. This recession was also ascribed to the closure of Shirley Gut, which, it is maintained, has cut off the supply of sand which drifts up the coast.

20. Discussion. - A dredged channel through Shirley Gut would constitute a convenient route to points on the North Shore of Massachusetts Bay, principally for pleasure boats quartered at the four yacht clubs in the vicinity of Winthrop. For the comparatively small number of pleasure boats based in upper Boston Harbor this route would be of less importance. At the higher stages of tide, vessels of small draft could probably at the present time save considerable distance by taking a general easterly course across Bird Island Flats and north of Governors Island to Shirley Gut. However, the existing harbor lines

in the vicinity of East Boston and Governors Island permit the filling of this area and it is the present plan of the City of Boston eventually to fill it in connection with development of the Boston Airport, which would close this route to navigation. For vessels of substantial draft, particularly at low tide, this course would not be practicable, and such vessels would necessarily keep to the main ship channel to a point beyond Governors Island Flats, then proceed north and east to the Gut. By way of the latter route to the Gut, the saving in distance, over the route south of Deer Island, would be relatively unimportant. Pleasure vessels based at points in the southern part of Boston Harbor, in Dorchester Bay, Quincy Bay, and Hingham Bay would have little incentive to use Shirley Gut as its use would necessitate crossing the main ship channel and would involve distances equal to, if not greater than, those traversed in using the main entrance channels.

21. Similar considerations apply to the fishing vessels and commercial craft which local interests claim would use the desired channel. With favorable tide, small fishing boats could follow a fairly direct course between the Fish Pier and Shirley Gut and to some extent such craft would probably benefit by the shortened route afforded. This route, however, could be used only until development of the Boston Airport closes it to navigation. The larger fishing vessels and tugs, and oil barges drawing 12 feet or more, could not use this direct route but would have to keep in the main channel until clear of Governors Island Flats, then proceed north and east to the Gut. Approached by this less direct route, a channel through Shirley Gut would shorten the sailing distance by only a small amount, and it is believed that few such vessels would use this circuitous and relatively restricted channel in preference to the open waters in the main entrance channels. With respect to the Boston fishing fleet, it may be noted that the most important fishing grounds, Georges Bank and the Grand Banks of Newfoundland, lie southeast and east of Boston, and for fishing vessels proceeding to and from these areas the main channel provides a shorter and more convenient approach to Boston wharves than would a channel in Shirley Gut.

22. In statements made at the hearing, repeated reference was made to the extremely strong currents which swept through Shirley Gut when the waterway was open as in former years. Proponents of the improvement not only expect these swift currents to reappear with the dredging of the Gut, but they also depend on them to effect a material abatement in pollution of local beaches and to form a barrier against the escape of prisoners in the Deer Island penal institution. These benefits may be attained to some extent by virtue of the swift currents which may reasonably be expected to reappear if the Gut is dredged, but from the point of view of navigation, the existence of strong currents in the narrow channel contemplated would be distinctly objectionable. Whether the channel were dredged to a width of 55 feet as suggested by some of the sponsors, or 100 feet as advocated by others, navigation by small pleasure craft would be far from ideal, and during adverse conditions of wind and tidal currents would be hazardous, if not impossible, for sailing vessels.

23. In 1939, the Waterways Division of the Massachusetts Department of Public Works prepared a plan for the improvement of Shirley Gut, consisting of a channel 1,300 feet long, 55 feet wide, and 8 feet deep at mean low water, with stone jetties at the outer end of the proposed channel. The estimated cost of this improvement was placed at \$108,900. Selection of this small channel cross-section was evidently influenced by a desire to avoid alterations to the sewer siphon and other facilities which cross the Gut. It is believed, however, that such a channel in this location would be unsatisfactory for any type of navigation, even small pleasure craft. A channel 12 feet deep and 100 feet wide would cost substantially more than the amount shown above, as the dredging quantities would be increased greatly over those involved in the smaller project. Moreover, major revisions to the sewer siphon and other utility crossings would be required by a 12-foot channel, adding materially to the cost. Even if jetties were provided at the outer end of the desired channel,

it is believed that there would be a continued tendency for the channel to shoal, requiring frequent and expensive maintenance dredging.

24. Collateral benefits which local interests expect to result from the opening of Shirley Gut include a reduction in beach erosion, abatement of pollution, and protection against the contingent dangers involved in prison breaks. While these are highly desirable objectives, the extent to which they would be attained by the desired improvement, as well as their value, is largely a matter of conjecture. It seems apparent that these problems are local in character and their solution should, therefore, be left in the hands of the local agencies involved. On the other hand, it has been clearly indicated that the City of Boston and the Coast Artillery, United States Army, have sound reasons for wishing to retain the existing land connection between Deer Island and the mainland. While the interests of these two groups could be adequately served by a bridge across the desired channel, this solution would add still more to the total cost of the project.

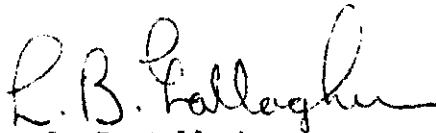
25. Although several statements were made at the hearing to the effect that the Town of Winthrop and possibly some of the yachting organizations might be willing to make some contribution toward the cost of the desired improvement, no definite offer of cooperation was received. The Waterways Division of the Massachusetts Department of Public Works failed to make its usual favorable statement with reference to the recommendation of a contribution by the Commonwealth. It is significant to note that this agency specifically requested that its attitude toward the project be regarded as neutral.

26. Local interests agree that the desired channel would be suitable only for recreational craft, fishing boats, and other small vessels, but they maintain that the diversion of large numbers of vessels of this type from the main ship channels would relieve congestion therein and thus result in important general benefits to commercial navigation in Boston Harbor. As indicated in the foregoing discussion, it is believed that the suggested channel would attract a far smaller volume of traffic than that anticipated by its

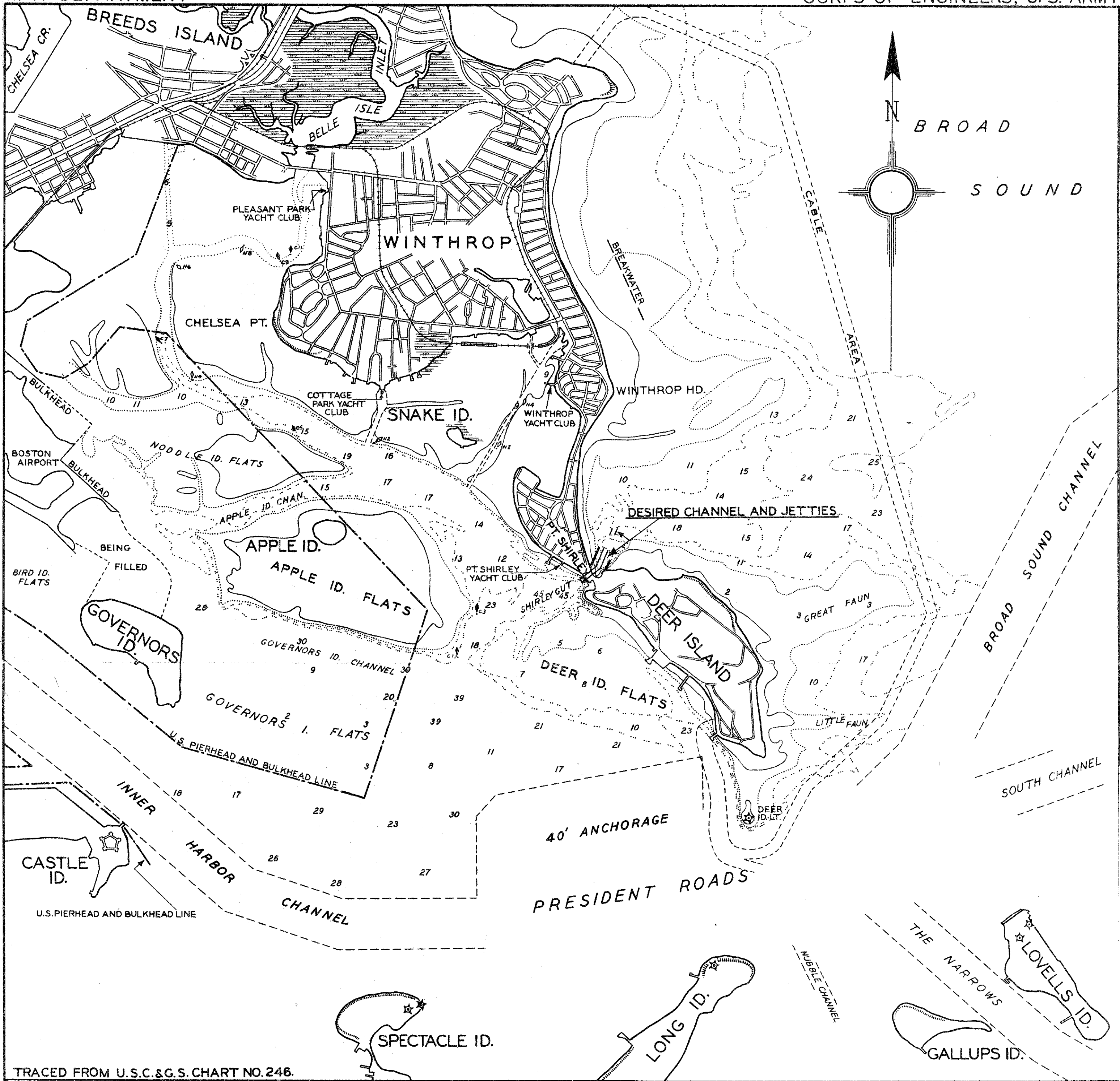
sponsors and that, while some benefit to general navigation might result from the diversion of small-boat traffic through the Gut, it would not be of major importance.

27. Conclusions. - The district engineer is of the opinion that the prospective benefits to navigation creditable to a dredged channel in Shirley Gut would consist primarily of convenience and a small saving in operating costs to small fishing boats and recreational craft, particularly pleasure vessels traveling between Winthrop and points north of Boston. The diversion of such vessels from the main ship channels of Boston Harbor would constitute only a minor benefit to commercial navigation. Other benefits which local interests hope to attain by reopening Shirley Gut, such as pollution abatement and protection against the escape of prisoners from Deer Island, are regarded as matters which fall within the province of local authorities. The district engineer believes, therefore, that the prospective benefits creditable to the desired improvement would not be commensurate with the probable cost of the project and concludes that a survey of the locality is not warranted.

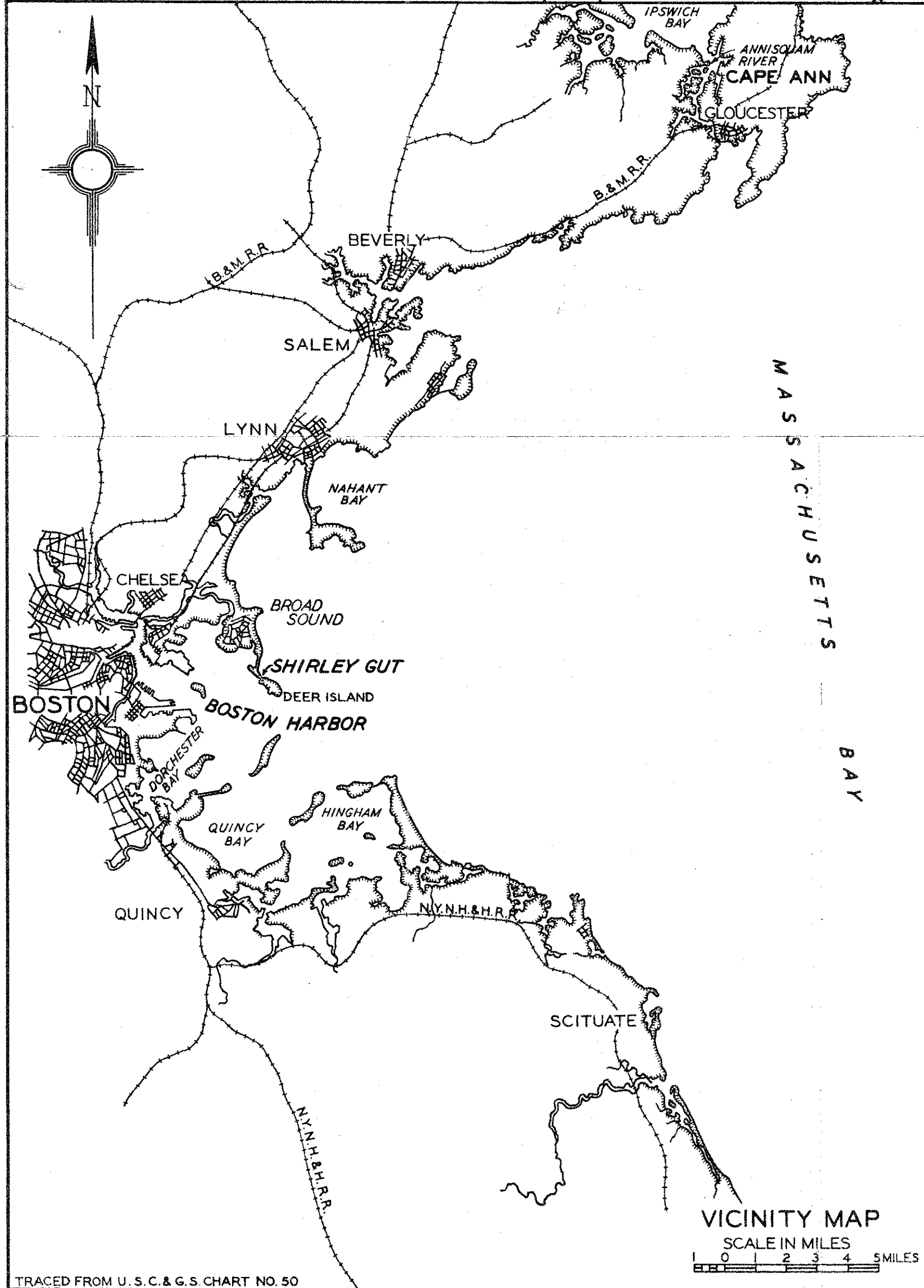
28. Recommendation. - The district engineer recommends that no survey of Shirley Gut, Boston Harbor, Massachusetts, be made by the Federal Government at the present time.


L. B. Gallagher,
Major, Corps of Engineers,
District Engineer.

Inclosure:
Map



TRACED FROM U.S.C.&G.S. CHART NO. 246.



TRACED FROM U. S. C. & G. S. CHART NO. 50

LEGEND

- MEAN HIGH WATER LINE SHOWN THUS ———
- MEAN LOW WATER LINE SHOWN THUS ———
- 6 FOOT CURVE OF DEPTH SHOWN THUS
- 12 FOOT CURVE OF DEPTH SHOWN THUS
- 18 FOOT CURVE OF DEPTH SHOWN THUS
- 24 FOOT CURVE OF DEPTH SHOWN THUS
- DEPTHS ARE IN FEET AT MEAN LOW WATER.

BOSTON HARBOR, MASS.
(SHIRLEY GUT)

IN 1 SHEET

SCALE 1:20000

1000 0 1000 2000 3000 4000 5000 6000 7000 FT

U. S. ENGINEER OFFICE, BOSTON, MASS., AUGUST 13, 1940

SUBMITTED: *Ag. rls*
MAJOR, CORPS OF ENGINEERS
APPROVAL RECOMMENDED: *Ag. rls*
MAJOR, CORPS OF ENGINEERS

APPROVED: *L. B. Callaghan*
MAJOR, CORPS OF ENGINEERS
DISTRICT ENGINEER

TO ACCOMPANY REPORT
DATED AUGUST 17, 1940.

CHIEF, RIVERS & HARBORS DIVISION DES. BY
DR. BY *Edward M. Wright*
SR. ENGINEER CK. BY A.J.K.

FILE NO. 788 DR.5